Center Independent Research & Development: GSFC IRAD

Asteroid Tomography

Completed Technology Project (2014 - 2016)

Project Introduction

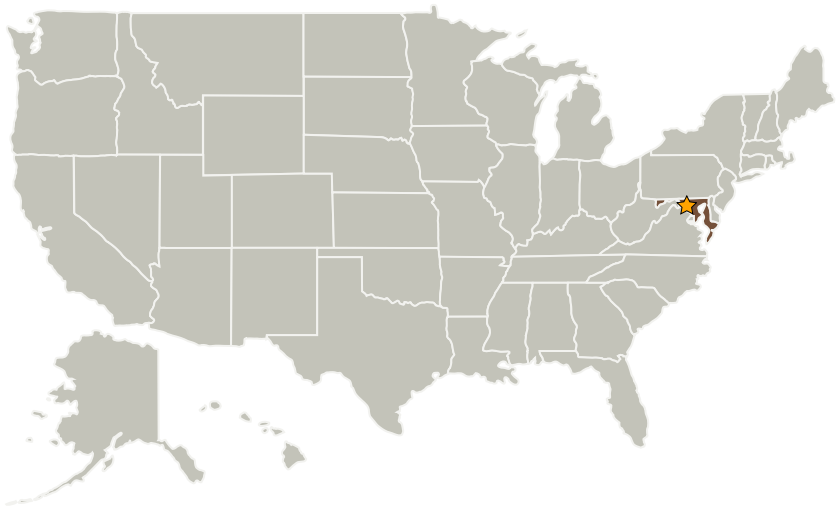
This proposed project will perform the study and simulation, of a concept for an instrument to tomographically map the internal density (structure) of an asteroid using Atom Interferometric Gravity Gradiometers (AIGG). The targeted outcomes are instrument design parameters, performance limitations, possible mission configurations, and a road map for further technology maturation.

The objective of this project is to continue to mature the concept of the gravity gradiometer instrument through simulation, development of its design parameters, and establishing its limitation. The Project will work with other Projects with potential missions on which this technology would provide detection possibilities beyond current state of instrumentation.

Anticipated Benefits

This Project will benefit the Asteroid Redirection Mission (ARM) and future missions.

Primary U.S. Work Locations and Key Partners



Near Earth Object

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
AOSense, Inc.	Supporting Organization	Industry	Sunnyvale, California

Primary U.S. Work Locations
Maryland

Images

Asteroid
Near Earth Object
(https://techport.nasa.gov/image/4157)

Project Website:

http://sciences.gsfc.nasa.gov/sed/

Organizational Responsibility

Responsible Mission Directorate:
Mission Support Directorate (MSD)

Lead Center / Facility:
Goddard Space Flight Center (GSFC)

Responsible Program:
Center Independent Research & Development: GSFC IRAD

Project Management

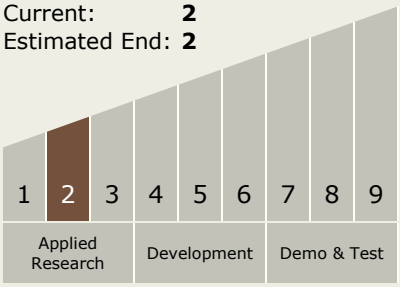
Program Manager:
Peter M Hughes

Project Manager:
Myra J Bambacus

Principal Investigator:
Shahriar Etemad

Technology Maturity (TRL)

Start: **2**
Current: **2**
Estimated End: **2**



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Technology Areas

Primary:

- TX09 Entry, Descent, and Landing
  - TX09.X Other Entry, Descent, and Landing